REMARKS

Claims 1 - 11 and 13 - 25 are in this application and are presented for consideration. By this Amendment, Applicant has made clarifying changes to each of independent claims 11, 22 and 23. Claims 11, 22, 23 and 24, and claims depending thereon, are presented for reconsideration. Applicant has made other minor changes including a minor correction to an error in claim 1.

Claims 1 - 10, 21 and 25 have been allowed.

Claims 11 - 17, 19, 20 and 22 - 24 have been rejected based on the teachings of Bublies et al. (U.S. 6,129,367) in view of Kooistra (U.S. 5,228,718) further in view of VanDenberg (U.S. 5,746,441). Applicant requests that the Examiner reconsider these rejections in view of the clarifying changes and in view of the important differences between the invention and the prior art as a whole.

An important aspect of Applicant's invention is the provision of a suspension for a rigid vehicle axle using at each side an axle strut connected to the axle via a molecular joint where this axle strut is also connected to the vehicle body (more particularly the vehicle chassis) at a pivot connection and wherein the axle is connected to a four point connecting rod and the chassis is connected to the four point connecting rod. This suspension according to the combination of any of claims 11, 22, 23 and 24 includes a spring assembly acting between the rigid axle and the chassis and as particularized in some of the claims (see claim 11) between the axle strut and the chassis. This provides an arrangement with a combination of four point connection element between the axle and the chassis and two two point connection elements

between the axle and the chassis with these two point connection elements (the axle struts) being connected to the axle directly via a molecular joint. This is an important aspect of the combination which provides for desirable kinematics and overall good suspension characteristics with a straightforward and reliable system of connections.

None of the references provide a suggestion of the basic combination of two connection point first and second axle struts with molecular connection to the axle and pivot connection to the chassis in combination with the four point axle to chassis connection.

Kooistra discloses longitudinally extending chassis members 11 and 12 wherein a frame bracket 30 attaches a main saddle 23 (including a side plate 24) to the chassis member 11 by means of a pivot 29. The main saddle 23 is connected to a walking beam 21 by means of a pivot 22, wherein axle assemblies 14 are pivotally mounted as at 20 upon each end of the walking beam 21. An upper plate 25 of the main saddle 23 includes supports for conventional air bags 32 which are mounted thereon. Shock absorber assemblies 40 are connected by one end of a bracket 41 extending downwardly from the rear of the saddle.

However, main saddle 23 is not (directly) connected to the vehicle axle by means of a molecular joint but is pivotally connected to walking beam 21 by means of pivot 22. Thus, main saddle 23 is not analogous to the axle strut according to the present invention which is (directly) connected to the vehicle axle by means of a molecular joint.

KOOISTRA includes a system with:

chassis member 11 - frame bracket 30 - pivot 29 - main saddle 23 - pivot 22 - walking beam 21 - pivot 20 - axle

THE PRESENT INVENTION includes a system with:

longitudinal beam 1b - side bracket 9 - joint 13 - axle strut 11 - joint 15 - vehicle axle 3

Hence, the suspension system according to Kooistra comprises an additional turning lever (walking beam 21, pivot 20) between chassis and axle. With respect to kinematics, such an additional turning lever leads to a different technical function of the main saddle 30 according to Kooistra compared to the axle strut according to the present invention.

Further, main saddle 23 is connected to the vehicle body by means of two "vehicle body joints" 29, wherein the two "vehicle body joints" 29 are located at spaced locations (chassis members 11 and 12) from one another in a transverse direction of the vehicle. Furthermore, main saddle 23 mounts "each end" of the transverse pivot shaft 22 and hence the walking beam assemblies. Thus, the two "ends" of the transverse pivot shaft 22 form two "joints" being located at spaced locations from one another in a transverse direction of the vehicle.

Consequently, main saddle 23 is a four point connecting member and not a two point connecting member like an axle strut.

The teachings and suggestions of Kooistra direct the person of ordinary skill in the art toward a different arrangement, namely the use of a four point connecting member instead of the four point connecting member in combination with two two point connecting members as claimed. Kooistra in combination with the other references fails to suggest the arrangement specified. Kooistra cannot suggest to arrange a spring assembly unit between a vehicle body and an axle strut wherein the axle strut is connected to the vehicle axle by means of the molecular joint and has a connection to the chassis.

U.S. 5,746,441 (VanDenberg) discloses a vehicle suspension system wherein a suspension frame 5 is welded to side channel 6. A control arm 17 is connected at its free end 61 to the frame 5 by means of a bushing 60 and a pivot pin 81. The other end of the control arm 17 is connected to a central beam 16 by means of a bushing 60 and a pivot pin 57 (see Fig. 3). The central beam 16 comprises a top wall 31 and a horizontal portion 35, wherein three air spring mounting plates 82 are mounted on top of horizontal portion 35 of top wall 31. Similarly, three mounting plates 83 are mounted to a slider such that an air spring 84 extends intermediate each mounting plate 82 and 83 for supporting the vertical load of vehicle 2.

However, VanDenberg does not disclose to arrange an air spring 84 on the control arm 17. Further, the control arm 17 is connected to the central beam 16 and not to the axle 12.

VanDenberg's central beam and structural components connected to the axle do not appear to be pivoted relative to the axle (there appears to be an axle to control arm 17 connection). As such VanDenberg also fails to suggest arranging a spring assembly unit between a vehicle body and an axle strut, namely an axle strut with a molecular joint connection to the axle and a pivot connection to the chassis.

Applicant respectfully requests that the Examiner favorably reconsider the claims.

Respectfully submitted
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